

**WEST**

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L2: Entry 34 of 45

File: JPAB

Jul 19, 1994

PUB-NO: JP406198108A  
DOCUMENT-IDENTIFIER: JP 06198108 A  
TITLE: COMPOSITE FILTER MATERIAL

PUBN-DATE: July 19, 1994

## INVENTOR-INFORMATION:

NAME

COUNTRY

TOGASHI, RYOICHI

KATO, HIROYASU

INT-CL (IPC): B01D 39/14; B01D 39/16; B01D 39/20; D04H 1/54; D04H 1/72

## ABSTRACT:

PURPOSE: To obtain good pleating property, flame-retardant property and dust holding property by constituting a composite filter material of sheets essentially consisting of an org. fiber and sheets essentially consisting of inorg fiber and having specified pore volume rate and specified trapping efficiency for particles of specified size.

CONSTITUTION: This composite filter material consists of sheets essentially consisting of inorg. fiber as a supporting material having 5-94% trapping efficiency for 0.3 $\mu$ m particles and  $\geq$ 86% pore volume ratio and sheets essentially consisting of an org. fiber. Weight proportion of the sheets essentially consisting of the org. fiber in the composite filter material is  $\leq$ 50%. As for the org. fiber sheets, melt-blown nonwoven fabric or electret fiber sheets are preferably used. As for the inorg. fiber, glass single fiber is most preferable. To make a strong one body of the supporting material and the org. fiber sheets, it is preferable that a heat-sealing component or cohesive component is present on the surface or in the area from the surface to the inside of the supporting body.

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L1: Entry 1 of 1

File: DWPI

Oct 25, 1989

DERWENT-ACC-NO: 1989-310940

DERWENT-WEEK: 198943

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TITLE: Vacuum cleaner dust filter bag - is of a fine fibre nonwoven with an outer filter paper layer

INVENTOR: KLIMMEK, A; RAABE, E

PRIORITY-DATA: 1988DE-3812849 (April 18, 1988)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
EP 338479 A	October 25, 1989	G	017	
DE 3812849 A	October 26, 1989		000	
DE 3812849 C	March 26, 1992		014	
DE 58902112 G	October 1, 1992		000	B01D039/18
EP 338479 B1	August 26, 1992	G	019	B01D039/18
ES 2035409 T3	April 16, 1993		000	B01D039/18

INT-CL (IPC): A47L 9/14; B01D 39/14; B01D 39/16; B01D 39/18; B01D 46/00

ABSTRACTED-PUB-NO: DE 3812849C

## BASIC-ABSTRACT:

The dust filter bag, for use in a vacuum cleaner, is a nonwoven of fine fibres in a weight of 10-50 g/m<sup>2</sup>, and an air permeability of 200-1500 litres/m<sup>2</sup>/sec. at a pressure of 2 mbar. The fibres have a mean dia. of 0.5-18 µ and a resistance to break in the longitudinal direction of 2-12 N/15 mm strip width and 1-10 N/15 mm strip width in the lateral direction. The outer filter paper layer has a weight of 30-80 g/m<sup>2</sup> and an air permeability of 80-500 litres/m<sup>2</sup>/sec. at 2 mbar pressure.

Pref. the fine fibre nonwoven is developed by a melt blown process using thermoplastic materials such as polyolefine, polyamide, polyester or copolymers of these, to give a material thickness of 0.15-0.4 mm, and pref. 0.18-0.30 mm. The pore dia. of the material is 25-60 micron, pref. 30-40 micron. The material is reinforced by a support using a porous nonwoven of cellulose, man-made fibres or filaments or mixts. of these formed by wet or dry laying, or spun lacing or bonding. The support material has a weight of 6-40 g/m<sup>2</sup>, pref. 8-20 g/m<sup>2</sup>, a thickness of 0.05-0.35 mm, pref. 0.07-0.25 mm, an air permeability of 500-4000 litres/m<sup>2</sup>/sec. at 2 mbar pressure, and pref. 1000-2000 litres/m<sup>2</sup>/sec. Its resistance to breaking in the longitudinal direction is more than 8 N/15 mm strip width and more than 3 N/15 mm strip width in the lateral direction. The outer filter paper layer is of long and short fibre cellulose or mixts. of cellulose with synthetic fibres and/or glass fibres in a paper thickness of 0.10-0.3 mm. The pore dia. of the filter paper is 35-80 micron, pref. 40-70 micron, and it has a resistance to break of 20-70 N/15 mm strip width longitudinally and 15-45 N/15 mm strip width laterally.

ADVANTAGE - The combination of filter materials gives a high dust retention, particularly of fine particles, but with low resistance to air passing through.

ABSTRACTED-PUB-NO:

DE 58902112G EQUIVALENT-ABSTRACTS:

A dust filter bag has a filter paper outer layer with a surface weight (50536) of 20-80g./m<sup>2</sup> and an air permeability (DIN 53887) of 80-500 l/m<sup>2</sup>.sec. at 2 mbar pressure and an inner fleece of fibres of average dia. 0.5-18 µm and a break resistance (DIN 53112) in the longitudinal direction of 2-12N/15mm strip width and in the transverse direction of 1-10N/15 mm strip width. The fleece is pref. made from fibres of a thermoplastic material, esp. polyolefin, polyamide, polyester or copolymers thereof. The filter paper outer layer may be made of cellulose and synthetic fibres and/or glass fibres.

USE/ADVANTAGE - The filter has good dust filtering properties and low air resistance and is useful as an air filter in copying appts., in semiconductor prepn., film making or in hospitals, etc.. (14pp)r

The dust filter bag, for use in a vacuum cleaner, is a nonwoven of fine fibres in a weight of 10-50 g/m<sup>2</sup>, and an air permeability of 200-1500 litres/m<sup>2</sup>/sec. at a pressure of 2 mbar. The fibres have a mean dia. of 0.5-18 µm and a resistance to break in the longitudinal direction of 2-12 N/15 mm strip width and 1-10 N/15 mm strip width in the lateral direction. The outer filter paper layer has a weight of 30-80 g/m<sup>2</sup> and an air permeability of 80-500 litres/m<sup>2</sup>/sec. at 2 mbar pressure.

Pref. the fine fibre nonwoven is developed by a melt blown process using thermoplastic materials such as polyolefine, polyamide, polyester or copolymers of these, to give a material thickness of 0.15-0.4 mm, and pref. 0.18-0.30 mm. The pore dia. of the material is 25-60 micron, pref. 30-40 micron. The material is reinforced by a support using a porous nonwoven of cellulose, man-made fibres or filaments or mixts. of these formed by wet or dry laying, or spun lacing or bonding. The support material has a weight of 6-40 g/m<sup>2</sup>, pref. 8-20 g/m<sup>2</sup>, a thickness of 0.05-0.35 mm, pref. 0.07-0.25 mm, an air permeability of 500-4000 litres/m<sup>2</sup>/sec. at 2 mbar pressure, and pref. 1000-2000 litres/m<sup>2</sup>/sec. Its resistance to breaking in the longitudinal direction is more than 8 N/15 mm strip width and more than 3 N/15 mm strip width in the lateral direction. The outer filter paper layer is of long and short fibre cellulose or mixts. of cellulose with synthetic fibres and/or glass fibres in a paper thickness of 0.10-0.3 mm. The pore dia. of the filter paper is 35-80 micron, pref. 40-70 micron, and it has a resistance to break of 20-70 N/15 mm strip width longitudinally and 15-45 N/15 mm strip width laterally.

ADVANTAGE - The combination of filter materials gives a high dust retention, particularly of fine particles, but with low resistance to air passing through.

EP 338479A

EP 338479B

A dust filter bag comprising a filter paper outer layer and an inner non-woven material, characterised in that the non-woven material consists of a fine fibred non-woven material with a weight per unit area (ISO 536) of 10 to 50 g/m<sup>2</sup>, a permeability to air (DIN 53887) of 200 to 1500 l/m<sup>2</sup>.s at a pressure of 2 mbar, an average fibre diameter of 0.5 to 19 micron, and a breaking strength (DIN 53112) in the longitudinal direction of 2 to 12 N/15 mm per width of strip and in the transverse direction of 1 to 10 N/15 mm per width of strip, and the filter paper outer layer has a weight per unit area (ISO 536) of 30 to 80 g/m<sup>2</sup> and a permeability to air (DIN 53887) of 80 to 500 l/m<sup>2</sup>.s at a pressure of 2 mbar.